**APPENDIX A: FAULT AND FRACTURE ORIENTATION MEASUREMENTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Digital data: <70 degree dip, synthetic to Hidden Valley Fault** | | | | |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| D1 | 1 | 51 | 50 |  |
| D3 | 1 | 68 | 55 |  |
| D6 | 1 | 68 | 57 |  |
| D7 | 1 | 75 | 66 |  |
| D10 | 1 | 67 | 57 |  |
| D13 | 1 | 58 | 52 |  |
| D14 | 1 | 74 | 51 |  |
| D15 | 1 | 83 | 55 |  |
| D30 | 1 | 48 | 58 |  |
| D31 | 1 | 59 | 59 |  |
| D32 | 1 | 56 | 58 |  |
| D33 | 1 | 52 | 66 |  |
| D37 | 1 | 52 | 57 |  |
| D38 | 1 | 51 | 58 |  |
| D39 | 1 | 47 | 55 |  |
| D40 | 1 | 49 | 58 |  |
| D41 | 1 | 56 | 54 |  |
| D42 | 1 | 68 | 62 |  |
| D43 | 1 | 57 | 56 |  |
| D49 | 1 | 51 | 64 |  |
| D50 | 1 | 55 | 64 |  |
| D51 | 1 | 39 | 67 |  |
| D55 | 1 | 51 | 69 |  |
| D58 | 1 | 52 | 56 |  |
| D59 | 1 | 48 | 51 |  |
| D60 | 1 | 58 | 62 |  |
| D61 | 1 | 58 | 60 |  |
| D62 | 1 | 55 | 59 |  |
| D63 | 1 | 51 | 48 |  |
| D64 | 1 | 52 | 55 |  |
| D65 | 1 | 52 | 49 |  |
| **Average** | | **57** | **57** |  |
| **Angular St. Dev.** | | **9.52** | |  |
|  |  |  |  |  |
| **Digital data: <70 degree dip, antithetic to Hidden Valley Fault** | | | | |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| D2 | 1 | 215 | 53 |  |
| D4 | 1 | 219 | 57 |  |
| D5 | 1 | 256 | 46 |  |
| D8 | 1 | 217 | 55 |  |
| D9 | 1 | 236 | 61 |  |
| D11 | 1 | 257 | 58 |  |
| D12 | 1 | 222 | 33 |  |
| D16 | 1 | 244 | 65 |  |
| D17 | 1 | 234 | 65 |  |
| D18 | 1 | 226 | 59 |  |
| D19 | 1 | 226 | 60 |  |
| D20 | 1 | 240 | 38 |  |
| D21 | 1 | 255 | 39 |  |
| D22 | 1 | 266 | 45 |  |
| D23 | 1 | 248 | 46 |  |
| D24 | 1 | 270 | 54 |  |
| D25 | 1 | 250 | 46 |  |
| D26 | 1 | 231 | 46 |  |
| D27 | 1 | 234 | 41 |  |
| D28 | 1 | 265 | 43 |  |
| D29 | 1 | 250 | 43 |  |
| D34 | 1 | 241 | 51 |  |
| D35 | 1 | 234 | 50 |  |
| D36 | 1 | 236 | 39 |  |
| **Average** | | **240** | **49** |  |
| **Angular St. Dev.** | | **14.66** | |  |
|  |  |  |  |  |
| **Digital data: >70 degree dip, synthetic to Hidden Valley Fault** | | | | |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| D52 | 1 | 53 | 79 |  |
| D53 | 1 | 47 | 77 |  |
| D54 | 1 | 53 | 82 |  |
| D56 | 1 | 52 | 77 |  |
| D57 | 1 | 62 | 71 |  |
| D66 | 1 | 46 | 70 |  |
| D67 | 1 | 46 | 73 |  |
| D68 | 1 | 51 | 75 |  |
| **Average** | | **51** | **75** |  |
| **Angular St. Dev.** | | **6.08** | |  |
|  |  |  |  |  |
| **Digital data: >70 degree dip, antithetic to Hidden Valley Fault** | | | | |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| D44 | 1 | 242 | 75 |  |
| D45 | 1 | 237 | 72 |  |
| D46 | 1 | 234 | 84 |  |
| D47 | 1 | 250 | 87 |  |
| D48 | 1 | 259 | 80 |  |
| **Average** | | **244** | **79** |  |
| **Angular St. Dev.** | | **10.51** | |  |
|  |  |  |  |  |
| **Field data: synthetic to Hidden Valley Fault** | | | |  |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| F1 | 3 | 55 | 61 |  |
| F7 | 1 | 46 | 58 |  |
| F5 | 1 | 58 | 67 |  |
| F9 | 1 | 64 | 58 |  |
| **Average** | | **56** | **61** |  |
| **Angular St. Dev.** | | **6.70** | |  |
|  |  |  |  |  |
| **Field data: antithetic to Hidden Valley Fault** | | | |  |
| **ID** | **Unit #** | **Strike (O)** | **Dip (O)** |  |
| F2 | 1 | 235 | 45 |  |
| F3 | 1 | 232 | 48 |  |
| F4 | 1 | 223 | 47 |  |
| F6 | 1 | 239 | 65 |  |
| F8 | 1 | 225 | 47 |  |
| **Average** | | **231** | **50** |  |
| **Angular St. Dev.** | | **8.73** | |  |

**APPENDIX B: UNIT THICKNESSES, AREAS, FRACTURE INTENSITY, REBOUND, AND COMPOSITION**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Lithology, Thickness, Fracture Intensity, Rebound** | | | | | |
| **Bed ID** | **Lithology** | **Thickness min (m)** | **Thickness Max (m)** | **Thickness Avg.** | **Bed Area (m2)** | **Total Fracture Length (m)** | **Intensity (m/m2)** | **Sample ID** | **Pavement ID** | **Schmidt Rebound Mean** |
| U1 | Packstone | 0.78 | 0.92 | 0.85 | 11.63 | 19.9 | 1.71 | **R6107 - 12** | P8 | 46.40 |
| U2 | Wackestone | 0 | 0.05 | 0.025 | 0.14 | -- | -- | **R6107 - 11** |  | 11.70 |
| U3 | Packstone | 0.61 | 0.68 | 0.645 | 8.42 | 19.02 | 2.26 | **R6107 - 10** |  | 41.90 |
| U4 | Wackestone | 0.31 | 0.46 | 0.385 | 5.47 | 0.47 | 0.09 | **R6107 - 9** |  | 12.90 |
| U5 | Wackestone | 0.36 | 0.40 | 0.38 | 4.69 | 4.87 | 1.04 | **R6107 - 8** | P7 | 46.30 |
| U6 | Packstone | 0.24 | 0.29 | 0.265 | 3.32 | 0.30 | 0.09 | **R6107 - 7** |  | 43.00 |
| U7 | Packstone | 0.22 | 0.27 | 0.245 | 3.18 | 0.01 | 0.00 | **R6107 - 6** |  | 9.60 |
| U8 | Packstone | 0.33 | 0.35 | 0.34 | 3.17 | 2.39 | 0.75 | **R6107 - 5** | P6 | 39.10 |
| U9 | Wackestone | 0.43 | 0.63 | 0.53 | 5.08 | 4.49 | 0.88 | **R6107 - 4** |  | 14.10 |
| U10 | Packstone | 0.11 | 0.17 | 0.14 | 1.47 | 4.28 | 2.91 | **R6107 - 3** | P5 | 31.70 |
| U11 | Wackestone | 0.34 | 0.40 | 0.37 | 3.58 | 2.54 | 0.71 | **R6107 - 2** | P5 | 38.20 |
| U12 | Wackestone | -- | -- | -- | -- | -- | -- | **R6107 - 1** |  | 10.30 |
|  |  |  |  |  |  |  |  |  |  |  |
| **Composition** | | | |  |  |  |  |  |  |
| **Bed ID** | **Quartz (wt %)** | **Potassium Feldspar (wt %)** | **Plagioclase Feldspar (wt %)** | **Calcite (wt %)** | **Dolomite (wt %)** | **Siderite (wt %)** | **Pyrite (wt %)** | **Anhydrite (wt %)** | **Total Clay (wt %)** | **TOTAL** |
| U1 | 2.40 | 0.68 | 0.63 | 89.12 | 0.21 | 0.16 | 0.18 | 3.41 | 3.20 | 100 |
| U2 | 5.17 | 0.86 | 0.60 | 82.69 | 0.09 | 0.13 | 0.29 | 3.57 | 6.61 | 100 |
| U3 | 3.63 | 0.81 | 0.59 | 87.58 | 0.17 | 0.15 | 0.25 | 3.38 | 3.43 | 100 |
| U4 | 7.20 | 1.04 | 0.51 | 77.44 | 0.19 | 0.30 | 0.36 | 3.35 | 9.59 | 100 |
| U5 | 5.25 | 0.97 | 0.52 | 83.01 | 0.18 | 0.23 | 0.32 | 3.33 | 6.18 | 100 |
| U6 | 5.87 | 1.33 | 0.62 | 81.82 | 0.20 | 0.27 | 0.29 | 3.27 | 6.32 | 100 |
| U7 | 8.61 | 1.44 | 0.52 | 76.77 | 0.24 | 0.20 | 0.20 | 3.60 | 8.42 | 100 |
| U8 | 5.13 | 1.00 | 0.48 | 83.76 | 0.21 | 0.10 | 0.18 | 3.53 | 5.61 | 100 |
| U9 | 5.22 | 1.21 | 0.52 | 78.89 | 2.36 | 0.29 | 0.44 | 3.37 | 7.70 | 100 |
| U10 | 3.01 | 1.08 | 0.63 | 87.43 | 0.28 | 0.25 | 0.26 | 3.13 | 3.92 | 100 |
| U11 | 3.27 | 0.74 | 0.41 | 88.25 | 0.26 | 0.15 | 0.28 | 3.59 | 3.04 | 100 |
| U12 | 6.95 | 1.10 | 0.42 | 78.15 | 0.22 | 0.15 | 0.16 | 2.98 | 9.88 | 100 |
|  |  |  |  |  |  |  |  |  |  |  |
| **Composition (2)** | | |  |  |  |  |  |  |  |
| **Bed ID** | **Quartz + feldspars + clays (wt %)** | **Clay + anhydrite (wt %)** | **Quartz + Feldspars (wt %)** | **Total Carbonate (wt %)** | **Brittleness Index** | **Chlorite (wt %)** | **Kaolinite (wt %)** | **Illite/Mica (wt %)** | **Illite + Smectite (wt %)** |  |
| U1 | 6.92 | 6.62 | 3.71 | 89.33 | 95.61 | 0.00 | 0.00 | 1.00 | 2.00 |  |
| U2 | 13.24 | 10.17 | 6.63 | 82.78 | 91.03 | 0.00 | 2.00 | 2.00 | 3.00 |  |
| U3 | 8.46 | 6.81 | 5.03 | 87.75 | 95.30 | 0.00 | 0.00 | 1.00 | 2.00 |  |
| U4 | 18.35 | 12.95 | 8.75 | 77.64 | 87.10 | 0.00 | 2.00 | 3.00 | 5.00 |  |
| U5 | 12.93 | 9.52 | 6.75 | 83.19 | 91.61 | 0.00 | 1.00 | 2.00 | 3.00 |  |
| U6 | 14.14 | 9.58 | 7.83 | 82.03 | 91.43 | 0.00 | 1.00 | 2.00 | 3.00 |  |
| U7 | 18.99 | 12.02 | 10.57 | 77.01 | 88.63 | 0.00 | 1.00 | 2.00 | 5.00 |  |
| U8 | 12.22 | 9.14 | 6.62 | 83.97 | 92.38 | 0.00 | 2.00 | 2.00 | 2.00 |  |
| U9 | 14.65 | 11.07 | 6.95 | 81.25 | 89.57 | 0.00 | 3.00 | 2.00 | 3.00 |  |
| U10 | 8.64 | 7.05 | 4.72 | 87.72 | 94.65 | 0.00 | 0.00 | 2.00 | 2.00 |  |
| U11 | 7.47 | 6.63 | 4.43 | 88.51 | 95.82 | 0.00 | 0.00 | 1.00 | 2.00 |  |
| U12 | 18.35 | 12.86 | 8.47 | 78.36 | 86.83 | 0.00 | 2.00 | 4.00 | 4.00 |  |